



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
OREGON OPERATIONS OFFICE
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April 18, 2013

Mr. Dave Lacey
Oregon Department of Environmental Quality
Northwest Region Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987

RE: EPA Recommendations for Data Gaps Evaluations during Development of the Feasibility Study
for the Former Rhone Poulenc - Portland Site

Dear Mr. Lacey:

The Environmental Protection Agency (EPA) has completed its assessment of data gaps and components that we see necessary during development of the Feasibility Study (FS) for the former Rhone Poulenc facility in order to address our ongoing concerns for fully accomplishing source control at this EPA-designated high priority site. We have attached for your consideration and use a technical memorandum titled "Recommended Data Gaps for Addressing in Feasibility Study Development", as prepared by EPA's contractor CDM Smith. This effort is in follow up to our March 13, 2013 meeting with DEQ and StarLink Logistics, Inc. representatives to discuss conceptual site model differences for ongoing source control efforts at the former Rhone Poulenc facility.

EPA appreciates the recent efforts put into this project and has found the discussions with StarLink representatives at the March 13th meeting and other recent meetings to be very constructive in providing information on this project. We believe that the parties are not that far apart on our conceptual site models for the groundwater transport of contaminants of concern from the former Rhone Poulenc facility towards the Willamette River. We are hopeful that our recommendations as provided in the attachment will be considered for adoption by Starlink and lead to advancement of the project on a path forward to developing a mutually agreed upon CSM for use in the FS. EPA and CDM Smith are available to meet with you at your convenience to discuss these recommendations.

Please feel free to contact me at 503-326-6554 or muza.richard@epa.gov regarding any questions that you might have on EPA's recommendations for data gaps evaluations during development of the FS at the former Rhone Poulenc facility.

Sincerely,


Rich Muza, RPM

Attachments

RECOMMENDED DATA GAPS FOR ADDRESSING IN FEASIBILITY STUDY DEVELOPMENT

1.0 Background and Context

On March 13, 2013 representatives from the EPA, Oregon Department of Environmental Quality (ODEQ) and CDM Smith met with representatives of Starlink Logistics, Inc. (SLLI), regarding the former Rhone Poulenc Facility, Portland, Oregon. The purpose of the meeting was to discuss EPA's comments on SLLI's Draft Supplemental Section 8.0 submitted on November 14, 2012 (Golder 2012). The revised Section 8 was initially discussed with SLLI representatives during the December 6, 2012 webinar. The March 13th meeting discussions identified areas of concern in terms of conclusions and comments made by both EPA and SLLI. Based on the dialogue during the meeting, the two parties agree on many aspects of contaminant transport pathways and on the distribution of chemicals from source areas at the former Rhone Poulenc property to the Willamette River. Furthermore, characterization and sampling efforts over the 30-year period of record had a variety of objectives that led to an unfocused distribution of sampling points both in space and in time and variable data quality. These factors result in a limited database causing great difficulty and a relatively high degree of uncertainty for characterizing the contaminants of concern (COCs) transport pathways in groundwater between the former Rhone Poulenc property and the River. EPA recognizes that upcoming efforts by SLLI to prepare a draft Feasibility Study (FS) focus on COCs at the site source areas. These source areas are located within and immediately adjacent to the former Rhone Poulenc property boundaries and the West Doane Lake Area. For this memorandum, the NAPL source area referred to is per descriptions in Section 8.2 and Figure 2-A of the Draft RI/SCE report (AMEC 2010), underlie approximately 3.5 acres as observed in 13 monitoring wells, and comprise dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL).

While EPA supports progress of the FS addressing the source area, we see the need for a parallel effort as a component of the FS process to address response actions for COCs migration from the source area to the area of potential concern 14 (AOPC-14) within the Willamette River. The objective of the recommended activity is to support the remedial decision process by addressing potential migration of COCs in deeper portions of the groundwater pathway downgradient of the source area and to initiate data collection to support long-term evaluations of protectiveness.

Based upon EPA's expressed concern of data gaps and uncertainties in the groundwater database, this memorandum provides an outline of recommendations/expectations for evaluating data gaps and, based on the evaluation results, the possibility for a response action focused on potential COCs migration via a deep groundwater pathway. As EPA has noted previously, lines of evidence exist to support a transport mechanism through groundwater deeper than the pathway identified in SLLI reports, within lithology overlying the bedrock aquifer, and discharging to the River. Hence, addressing the deeper portions of the groundwater migration pathway remains consistent with ongoing FS elements that address COCs migration from the former Rhone Poulenc property to the River.

Further, monitoring the efficacy of Interim Remedial Action Measures (IRAMs) for Outfall 22B is necessary to show that transport of COCs to the River, via the stormwater Outfall 22B and the underlying shallow groundwater, have been mitigated. The parties agreed in the March 13th meeting that shallow sediment contamination in the River just offshore and downgradient of Outfall 22B is consistent with releases of COCs from the outfall. The parties also agreed that the source of contaminants in sediment at the outfall is uniquely different than adjacent upgradient sediments, based upon comparisons of dioxin/furan congeners profiles between outfall area and the profile observed from sediments offshore of adjacent upriver property. The group concluded the data suggested a source(s) of contaminants to outfall area sediments other than contaminated sediments from the adjacent upriver property. Since the outfall

has been shown to be a source of COCs released to the River, monitoring of the effectiveness of mitigation efforts is required to show that releases are effectively eliminated from the outfall and groundwater in the preferential pathway of the stormwater conveyance.

Areas of uncertainty and recommended efforts to reduce remaining uncertainties are summarized in this memorandum. Uncertainty is associated with the limited data for a COCs migration pathway in deep groundwater originating from source areas and with subsequent release to the River. The deep groundwater that may be part of this transport pathway underlies portions of properties north and east of the BNSF railway and along the riverbank as depicted in **Figure 1**. Recommended actions that can be conducted in parallel with the FS phase are listed below.

- Address the vertical extent of the groundwater transport pathway between source areas on the former Rhone Poulenc property and the River to support evaluation of alternatives in the FS for remedial decisions that control contaminant sources to the River.
- Further evaluation of a groundwater extraction/treatment action based upon the existing system and/or additional wells, to achieve containment of COCs; thereby, addressing in the FS a potential remedial alternative for containment of COCs transport via intermediate and deep groundwater pathways if determined by additional monitoring.
- Performance monitoring to assess the effectiveness of recently completed Outfall 22B IRAMs.

The following sections present a more detailed description of EPA's perspectives concerning data gaps and recommended components of potential future response actions.

2.0 Recommended Data Gaps Components

The following section presents EPA's recommendations to include as components of the ongoing FS process to support remedial decisions addressing source areas and contaminant migration downgradient from the former Rhone Poulenc property.

2.1 Vertical Extent of Groundwater North and East of Former Rhone Poulenc Property

It is EPA's assessment that the vertical extent of the groundwater transport pathway between source areas on the former Rhone Poulenc property and the River is not sufficiently characterized to fully evaluate alternatives in the FS or to support remedial decisions. Review of remedial investigations and construction design reports for properties down gradient from the former Rhone Poulenc facility and adjacent to the River include lithologic interpretations through cross-sections and well log information providing strong evidence that hydraulic and lithologic properties support the presence of a deeper migration pathway. These adjacent property reports discuss deep groundwater as a transport medium to the River near the former Rhone Poulenc property. Adjacent properties' RI and design reports conclude that a coarse-grained, highly permeable sand and gravel layer is present immediately overlying the basalt and extends upgradient toward Highway 30 and the former Rhone Poulenc facility source areas. Groundwater in this lithologic unit is documented to have a strong upward gradient as it approaches the River. In EPA's assessment, transport of COCs from the former Rhone Poulenc sources (i.e., DNAPL/LNAPL) to and through this unit is not well presented or evaluated as a pathway for COCs release to the River, as presented in the Draft Supplemental Section 8 (Golder 2012).

EPA notes that SLLI has delineated transport of COCs along a pathway influenced by the stormwater conveyance system for Outfall 22B from site-related sources to the River; EPA does not question or deny that this transport pathway exists. However, SLLI has defined both the width and depth for COCs migration along this pathway using limited data collected based on SLLI's conceptual site model (CSM).

This CSM assumes that coarse-grained material within the deeper bedrock basin to the north and east of the former Rhone Poulenc property (downstream) is a different unit (i.e., Troutdale Formation). The model further assumes that the "Troutdale" unit is not hydrologically connected to groundwater that carries COCs to the River [see Figure 6-T in the Draft RI/SCE report (AMEC 2010)]. As a result, SLLI's Draft Supplemental Section 8 information does not address the deep groundwater basin as a transport pathway for COCs to the River.

The initial evaluation in the Draft RI/SCE Report (AMEC, 2010) identifies the lithology overlying the bedrock and includes data from well RP-11. Although analytical results for RP-11 are uncertain owing to the choice of analytical methods and lack of second column confirmations, the analyses do show the presence of COCs at the deepest point and overlying the bedrock.

In contrast to SLLI's re-interpretations of the data, as now provided in the Draft Supplemental Section 8 (Golder 2012), technical studies by neighboring property owners have not defined this lithologic unit as the Troutdale Formation and instead have documented it as an extensive layer of coarse-grained material overlying bedrock. Furthermore, they have defined the groundwater flow regime within this unit as having a strong upward gradient as it approaches the River.

EPA recommends that as an effort parallel with evaluating remedial alternatives in the FS phase, SLLI develop a groundwater monitoring plan -- for DEQ and EPA review -- that includes sampling of existing monitoring wells and newly installed monitoring wells if deemed necessary that are completed in the coarse sand and/or gravel overlying bedrock in the area shown by red hatching in **Figure 1**. The objective of this sampling plan is to provide current groundwater data to address the presence or absence of COCs and to document concentrations within the alluvial unit and the coarse-grained material overlying bedrock that would, if present, represent a deep groundwater transport pathway from contaminate sources at the former Rhone Poulenc property (i.e., DNAPL/LNAPL area) to the River. In addition, this sampling effort will fill the data gap for COCs in this coarse-grained layer and provide information to support future evaluations of protectiveness and potential response actions' performance.

The sampling plan would include analysis for COCs, including but not limited to the following marker chemicals; these COCs should be included regardless of whether sources other than former Rhone Poulenc activities may exist: 2,3,7,8-TCDD; Silvex; DDx; 2,4-D; Arsenic; Endrin; 1,2-Dichlorobenzene; and Chlorophenols.

2.2 Supplemental Evaluation of Deep Groundwater Extraction/Treatment Remedy

In parallel with the preparation of the Draft RI/SCE report, SLLI evaluated the feasibility of a deep groundwater source control measure called the North Front Avenue Interim Source Control Measure (NFA ISCM). To investigate this source control measure, SLLI conducted a pilot test in 2010 involving several deep extraction wells. A subsequent report titled Extended Pumping Test (EPT) Report (Golder 2011) summarized test information. The main conclusion in this report -- that a pump and treat system in the area of North Front Avenue is not necessary -- appears to have been made using the conceptual site model described above and results from the SCE as presented in the Draft RI/SCE report (AMEC 2010).

Since SLLI recognizes that a groundwater transport pathway for COCs exists between the SLLI property and the River, and since the extent of deep groundwater contamination is not sufficiently delineated in the Draft RI/SCE report, EPA recommends that the NFA ISCM be re-evaluated. The deep groundwater pump and treat system may have potential in containing the migration of COCs within the more distal and deeper groundwater that exists outside of the current FS focus (e.g., site source areas). The evaluation would include a more thorough evaluation of the hydraulic properties of the deep, coarse-grained material directly overlying bedrock as a part of the North Front Avenue COC transport pathway. In addition, if

COCs concentrations above screening level values (SLVs) are observed, it is recommended that SLLI perform pilot testing of coarse-grained material that overlies bedrock beneath property north and east of the former Rhone Poulenc facility and north of the BNSF railroad alignment.

2.3 Monitoring Program to Evaluate Effectiveness of 22B Outfall Pipe Lining IRAM

EPA recognizes that SLLI has implemented several stages of IRAMs associated with the lining of Outfall 22B. The objective for these IRAMs was to stop and prevent COCs from preferentially flowing into, out of, within, and along the stormwater conveyance alignment from the former Rhone Poulenc facility to North Front Avenue and eventually the River.

With the conclusion of the latest Outfall 22B pipe lining stage, it is recommended that SLLI develop a monitoring and evaluation plan that will evaluate the combined effectiveness of these IRAMs as they relate to the cessation and prevention of COCs migration along this identified pathway. As noted in the introduction to this memorandum, discharges from Outfall 22B are the likely source of sediment contamination in the River immediately offshore of the Outfall; this contamination includes 2,3,7,8-TCDD -- one of the identified COCs. Demonstration that release of COCs has been greatly reduced or eliminated is a critical component of documenting source control to and protectiveness of the River.

The plan would outline a monitoring program that includes sampling locations that focus on migration of COCs within and along the stormwater conveyance alignment. Issues for representative sampling should address both vertical and spatial dimensions. A review of MVS modeling outputs of contaminant plumes, based on the most recent abundant data sets (i.e., 2007 and 2010), can guide locating any additional monitoring wells and selecting the optimal screened intervals for these monitoring points.

EPA recommends that SLLI prepare a set of draft data quality objectives (DQOs) to define the monitoring program. These DQOs will form the basis for discussion and finalization with all parties to help ensure that the proper data are collected. Development of DQOs would also consider sampling of stormwater as part of the Outfall 22B IRAMs effectiveness evaluation.

3.0 Additional Recommendations

EPA makes the following recommendations for consideration in data collection and reporting efforts by SLLI in the future:

- Present MVS model outputs that delineate source areas and show the distribution of COCs between these sources and the River.
- Filter out chemical data for which confidence is low, along with data based on incompatible laboratory methods. Use the resulting dataset to develop contour maps and 2-D cross-sections showing isoconcentrations of marker chemicals (the figures in Section 8.0 Supplement Report are useful examples).
- Continue monitoring marker chemicals on a seasonal (i.e., bi-annual) basis in a consistent, limited set of monitoring wells that have screens completed discretely within each of the four stratigraphic layers. An additional set of monitoring wells completed within the thicker portions of the alluvium to monitor upper and lower horizons within this layer could be selected for this routine long-term monitoring program. Selected monitoring wells would preferably have an existing long period of record, but new monitoring wells may be added to the monitoring plan in order to fill data gaps.

- Maintain a consistent laboratory using the best commercially available analytical methods for all future analyses. When two or more analytical methods are available, the method with the lowest practical quantitation limit should be used.

4.0 References

AMEC 2010, Draft Remedial Investigation and Source Control Evaluation Report Rhone Poulenc Portland Site Portland, Oregon. Submitted to Oregon Department of Environmental Quality, on behalf of StarLink Logistics, Inc. November 19, 2010.

Golder 2011, Extended Pumping Test Report (EPT) Former Rhone Poulenc Site, Portland, Oregon. Submitted to Oregon Department of Environmental Quality on behalf of StarLink Logistics, Inc. by Golder Associates Redmond, Washington. 15 June 2011.

Golder 2012, Draft Supplemental Section 8, Summary of Chemical Nature and Extent and Fate and Transport, for Draft Remedial Investigation/Source Control Evaluation Report, Former Rhone-Poulenc Site, Portland, Oregon. Submitted to Oregon Department of Environmental Quality on behalf of StarLink Logistics, Inc. by Golder Associates Redmond, Washington. 14 November 2012.

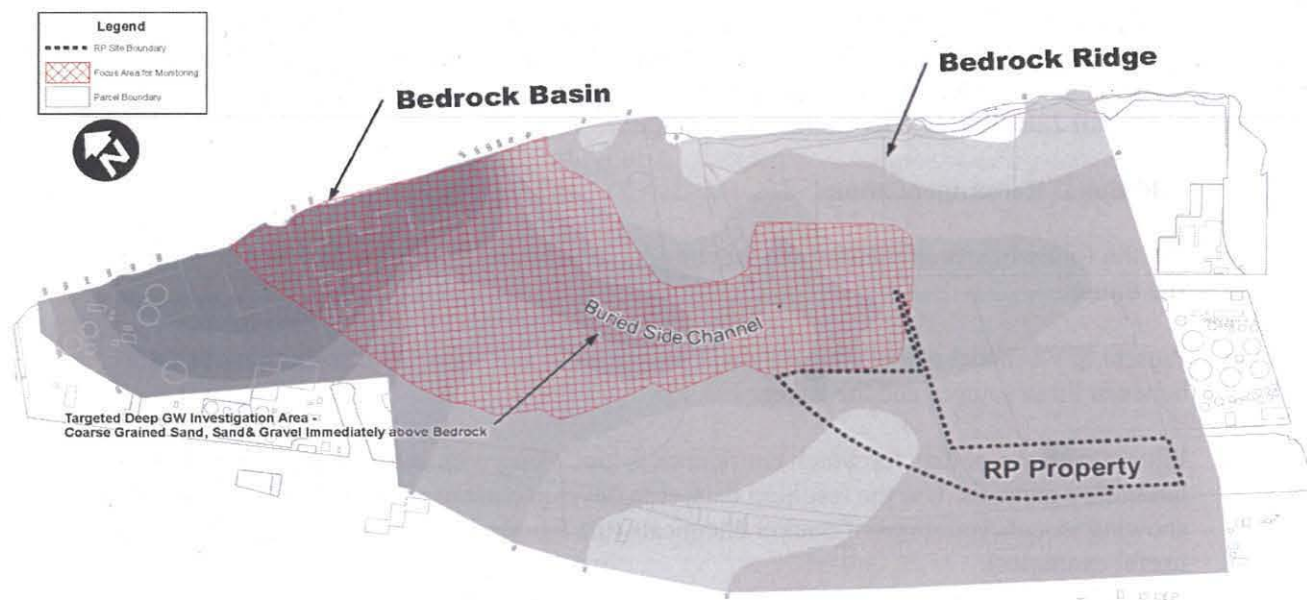


FIGURE 1 Targeted Deep Groundwater Area

Modified from Figure 6-R in the Draft RP RI/SCE Report (Amec 2010)